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INVESTIGATION OF ANTARCTIC CRUST AND UPPER MANTLE
USING MAGSAT AND OTHER GEOPHYSICAL DATA

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TYPE II

C.R. Bentley - Principal Investigator

Over the past several months we have begun processing and analyzing the Investigator B MAGSAT data. Ritzwoller attended a MAGSAT Investigators' Meeting and the IAGA Meeting in Edinburgh and presented a paper entitled "Comparison between MAGSAT and other Geophysical Data over Antarctica" (authors: M.H. Ritzwoller, C.R. Bentley, and L.L. Greischar).

With respect to the data processing we have completed the following tasks which are necessary precursors to intelligent data analysis:

1. Translated the IBM-formatted NASA tape to Harris-formatted reels for compatibility with our geophysical computer. We had some trouble at our end performing this operation, but it has now been completed.
2. Reformatted the Investigator B tape due to the discontinuity resulting from the pass number changing over Antarctica.
3. Developed a quadratic least-squares fit routine for filtering external field effects from MAGSAT data.
4. Developed computer-graphics routines associated with the analysis of MAGSAT data.
5. Developed an imperfect computer continuation routine.
6. Nearly completed our first scalar anomaly map over Antarctica.

With respect to data analysis, which has taken much less of our time, we have qualitatively correlated NASA's 4/81 scalar map of Antarctica with other geopotential data - our conclusions formed the substance of the paper delivered at the IAGA meeting. Most importantly, we have noticed a fine

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correlation between MAGSAT and POGO data and the expected anti-correlation between MAGSAT and continental scale gravity data. However, we are dismayed by a magnetic high over the Ross Embayment.

In conclusion, we are making slow but steady progress, impeded by the need to develop the software to take every new hurdle but aided by the general excellence of NASA's product.

September 9, 1981

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